

ORIGINAL ARTICLE

Second Intention Healing after Shave Excision of Benign Tumors on the Lid Margin

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Background: Defects caused by excision of benign lid margin tumors are conventionally repaired by reconstructive surgery. However, second intention healing is another option for managing wounds on the lid margin. **Objective:** To evaluate the effectiveness of second intention healing after a shave excision of benign tumors on the lid margin. **Methods:** Lid defects following a shave excision of the lid margin tumor were allowed to heal by second intention in 25 patients (26 lesions). The epithelialization period was calculated, and cosmetic and functional results and complications were evaluated by photographs and ophthalmological examination. **Results:** The locations of the defects were as follows: upper lid (n=13), lower lid (n=11), and both upper and lower lids (n=1). The mean tumor size was 3.8×3.6 mm, and the mean epithelialization period by second intention was 6.1±1.2 weeks. Pathological examinations revealed intradermal nevus (12 cases), compound nevus (five cases), squamous papilloma (five cases), and epidermal cyst (three cases). No patients had a corneal erosion, trichiasis, or hypertrophic scar, except loss of cilia in two cases. The functional and cosmetic results were satisfactory in all patients. **Conclusion:** Healing by second intention is a safe and effective alternative to surgical reconstruction after a shave excision of benign lid margin tumors. (*Ann Dermatol*

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-Keywords-

Benign lid tumor, Lid margin tumor, Second intention healing, Shave excision

INTRODUCTION

Defects caused by excision of benign tumors on the lid margin are conventionally repaired by reconstructive surgery. Small lid margin defects are usually repaired by direct closure, and larger defects are usually repaired by flaps or grafts, such as the Tenzel semicircular flap, modified Hughes flap, tarsomarginal graft with skin flap, or free tarsoconjunctival graft with skin-orbicularis muscle flap¹⁻⁴. However, we propose healing by second intention as another option for managing wounds on the lid margin. Healing of lid defects by second intention was first described in 1957 by Brown and Fryer⁵. These investigators were the first to consider natural healing as an alternative to immediate surgical repair of an excised lower eyelid. Concerns related to this technique include unpredictability and suboptimal cosmetic and functional results associated with prolonged healing time as well as bleeding and infection⁶. However, in other studies, factors such as the anatomical location of the defect, skin color, wound size, and wound depth have been shown to be helpful for predicting the results of healing by second intention⁷. Furthermore, Lowry et al. described that many of the complications associated with periorcular second intention healing are similar and comparable to those reported for primary reconstruction⁸.

The objective of this study was to evaluate the effectiveness of second intention healing after shave excision

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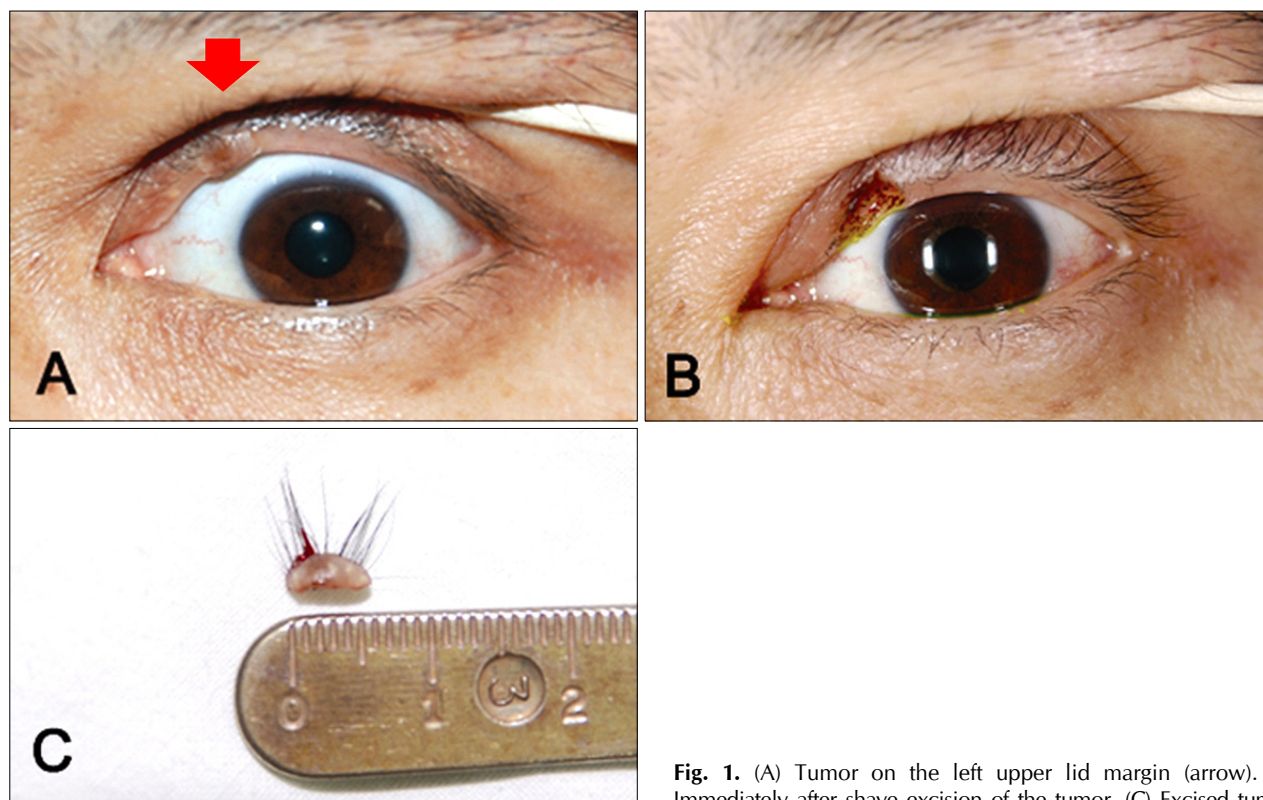


Fig. 1. (A) Tumor on the left upper lid margin (arrow). (B) Immediately after shave excision of the tumor. (C) Excised tumor.

of a benign tumor on the lid margin.

MATERIALS AND METHODS

Twenty-five patients with benign lid tumors on the lid margin underwent a shave excision without reconstruction between March 2004 and August 2007. These 25 patients represented 26 lesions (one patient had two lesions). Informed consent was obtained from all subjects. Each shave excision was performed under local anesthesia. The excision margin was marked with gentian violet 1 mm from the clinically visible edge of the tumor. The excision margin was then demarcated with a no. 15 blade, and the tumor was excised with Westcott scissors. Bleeding was controlled with cauterization (Fig. 1).

After tumor excision, the defect was allowed to heal by second intention. The defect was dressed with ointment containing neomycin sulfate, polymyxin B sulfate, and dexamethasone (Forus ophthalmic ointment[®]; Samil, Seoul, Korea) for proper wound care. Each patient was instructed to apply the ointment twice a day until the defect was fully covered with epithelium. When a corneal erosion was present, gentamicin solution (Ocugenta eye[®]; Samil, Seoul, Korea) was administered four times a day.

The epithelialization period, cosmetic and functional results, and complications were evaluated. Epithelialization period

was defined as the duration between the day of tumor excision and the day when the defect was completely covered with epithelium. Cosmetic and functional results were graded as good, fair, or poor by one ophthalmologist. Cosmetic results were evaluated by comparing preoperative and postoperative photographs. Functional results were evaluated by ophthalmologic examination of eyelid and lid movement. Complications were reported considering patient comments and the ophthalmologic examination results.

RESULTS

We studied 25 patients (11 men and 14 women) (Table 1). The mean age of the patients was 38.2 years (range, 23 ~ 86 years). The follow-up period ranged from 5 to 15 weeks (mean follow-up, 12.4 weeks). The upper lids were involved in 13 cases, the lower lids were involved in 11 cases, and both upper and lower lids were involved in one case. The mean tumor size was 3.8×3.6 mm (range 2×3~6×5 mm), and the mean epithelialization period by second intention was 6.1±1.2 weeks. Pathological examinations revealed the following diagnoses: intra-dermal nevus (12 cases), compound nevus (five cases), squamous papilloma (five cases), and epidermal cyst (three cases).

Table 1. Patient demographics

	Sex	Age	Diagnosis	Location	Size (mm)	Epithelization period (weeks)	Cosmetic result	Functional result	Complication	Recurrence after 3 months
1	F	42	Intradermal nevus	Upper lid	3×5	6	Good	Good	Loss of cilia	No
2	M	24	Intradermal nevus	Upper lid	4×3	5	Good	Good	No	No
3	F	29	Intradermal nevus	Upper lid	3×3	5	Good	Good	No	No
4	M	30	Intradermal nevus	Upper lid	6×5	8	Good	Good	No	No
5	M	36	Intradermal nevus	Lower lid	2×4	7	Good	Good	No	No
6	F	45	Intradermal nevus	Lower lid	3×5	6	Good	Good	No	No
7	M	23	Intradermal nevus	Lower lid	4×3	5	Good	Good	No	No
8	F	32	Intradermal nevus	Lower lid	6×4	6	Good	Good	No	No
9	F	34	Intradermal nevus	Lower lid	5×3	4	Good	Good	No	No
10	F	27	Intradermal nevus	Lower lid	3×3	6	Good	Good	No	No
11	F	38	Intradermal nevus	Lower lid	2×4	8	Good	Good	No	No
12	M	28	Intradermal nevus	Upper & lower lids	4×3	5	Good	Good	No	No
13	M	32	Compound nevus	Upper lid	5×5	6	Good	Good	No	No
14	F	31	Compound nevus	Upper lid	6×3	7	Good	Good	No	No
15	M	31	Compound nevus	Upper lid	2×3	8	Good	Good	No	No
16	M	23	Compound nevus	Lower lid	3×4	6	Good	Good	No	No
17	M	30	Compound nevus	Lower lid	4×3	5	Good	Good	No	No
18	M	86	Squamous papilloma	Upper lid	2×3	8	Good	Good	Loss of cilia	No
19	F	54	Squamous papilloma	Upper lid	2×3	4	Good	Good	No	No
20	F	51	Squamous papilloma	Upper lid	3×4	6	Good	Good	No	No
21	F	61	Squamous papilloma	Upper lid	4×3	7	Good	Good	No	No
22	M	70	Squamous papilloma	Lower lid	5×3	6	Good	Good	No	No
23	F	25	Epidermal cyst	Upper lid	6×4	4	Good	Good	No	No
24	F	33	Epidermal cyst	Upper lid	2×3	4	Good	Good	No	No
25	F	41	Epidermal cyst	Lower lid	6×4	3	Good	Good	No	No

F: female, M: male.

Two patients complained of loss of cilia at the biopsy site, but no patient had significant complications, such as ectropion, corneal erosion, trichiasis, hypertrophic scar, lid notching, or wound infection. The functional and cosmetic results were satisfactory in all patients without any significant deformities. All wounds became covered with normal appearing epithelium (Fig. 2). Each patient was followed up 3 months after shave excision, and no case of tumor recurrence was observed.

DISCUSSION

Primary intention healing occurs when a surgeon directs closure of the wound by approximating the wound edges. When an acute wound is left to heal on its own, it is termed second intention healing. Regarding wound on the lid margin, second intention healing has not been used as a primary management method, because it has been associated with disadvantages including prolonged healing time of several weeks, unpredictable cosmetic results, and a risk of tissue distortion and wound infection. Furthermore, there is a small chance that secondary surgical intervention will be required⁹⁻¹³. Enthusiasm for reconstructive procedures has now largely overshadowed

concerns related to the efficacy and safety of spontaneous granulation.

However, second intention healing has some advantages; it is cost-effective, and it allows for observation of tumor recurrences that have a high risk of recurrence. When a wound is infected, healing by second intention is also indicated if the anticipated cosmetic result is at least as good as that achieved by reconstruction⁷. These wounds may be allowed to heal by second intention in patients who are at poor surgical risk for reconstructive surgery. Final defect size decreases by as much as 50% through second intention healing.

Moreover, lid margins have exclusive advantages for second intention healing. First of all, tissues in the periocular region are highly vascular, and they easily become granulated. Once wounds are allowed to granulate, they become very resistant to infection, and hematomas rarely form. Zitelli suggested that the most important factor for a cosmetic outcome is wound location. He divided the facial area into three groups according to the cosmetic results: "excellent", "satisfactory", and "variable" groups^{7,14}. The medial canthal areas show excellent cosmetic results, as confirmed by other studies^{9,15-18}. The flat surfaces of the eyelid,

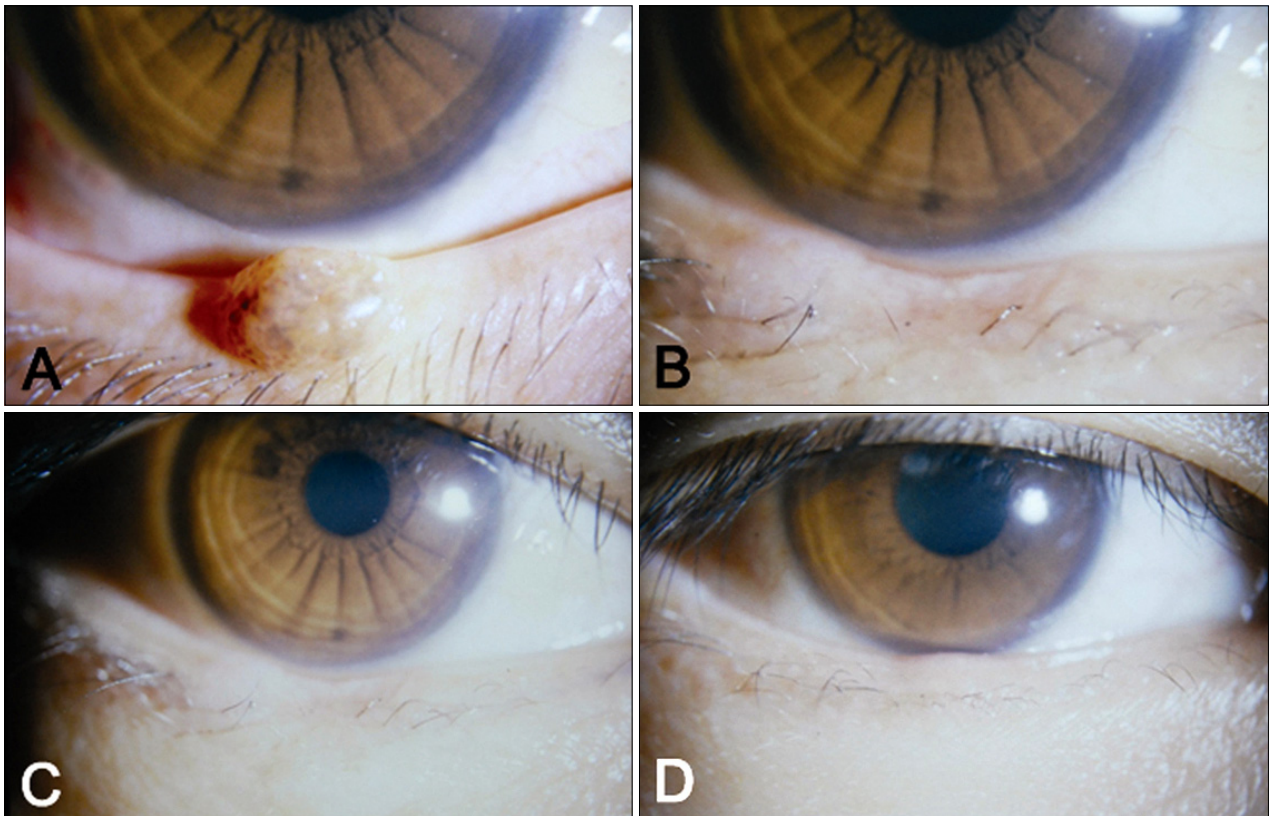


Fig. 2. (A) Tumor on the right lower lid margin. (B) One week after the shave excision. (C) Two weeks after the shave excision. (D) Six weeks after the shave excision.

including the lid margin, were classified into the "satisfactory" results group. Second, lid margin wounds are superficial, and they usually heal with better cosmetic results compared to deep wounds in the same area. Wound contraction is the most important tissue factor related to cosmetic outcome. Superficial wounds heal with less wound contraction, because there is less deposition of collagen during the fibroblastic phase of the wound healing process. This consideration is more important for the lid margins, where superficial wounds may heal with excellent results, whereas deep wounds may heal with less acceptable results¹⁴. Third, complications associated with periocular second intention healing are similar and comparable to those reported for primary reconstruction⁸.

Fox and Beard reported good results following healing by second intention in six medial canthal defects¹⁵. Many other authors have suggested that the final cosmetic result is equal to or better than that seen with most surgically reconstructed wounds^{9,17,18}. In periocular region, Lowry et al. described a series of 59 patients with periocular skin defects and reported that the functional and cosmetic results were satisfactory in 49 patients (83%)⁸. Compli-

cations occurred in 10 patients and included ectropion (three cases), medial canthal webbing (three cases), trichiasis (one case), eyelid notching (one case), and hypertrophic scarring (one case). However, only two patients (3.4%) required secondary repair for canalicular involvement of the defect. Shankar et al. obtained "good" or "very good" functional and cosmetic results in 23 of 25 cases (92%) according to their criteria¹³. One patient with exuberant granulation tissue required secondary intervention. Mehta noted that only one of 11 patients required secondary repair due to postoperative ectropion after excision of a lesion involving the lid margin¹⁶. In all 11 patients, wounds healed in about 6 weeks without ocular or palpebral complications, and the cosmetic appearance continued to improve over the following 6~8 weeks. In our study, the mean epithelialization period was 6.1 ± 1.2 weeks. All 25 patients had good cosmetic and functional results, and no patient developed complications during the process of healing, except two cases with loss of cilia. The lid margin plays important roles lubricating the ocular surface and maintaining a smooth margin to prevent ocular irritation. Wounds of the lower lids are reported to heal with acceptable results, even with full-thickness loss

of the lid margin⁸. Mehta suggested that one-half of the lower lid margin renders surgical reconstruction optional¹⁶. The upper lids are more important functionally, because of their movement during blinking. Fourteen of our patients had upper lid margin involvement, and no patient exhibited corneal abrasion or complained of ocular irritation or discomfort.

Healing by second intention is an effective, safe, and inexpensive alternative to primary closure or staged reconstructive surgery for management after a shave excision of benign lid margin tumors.

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